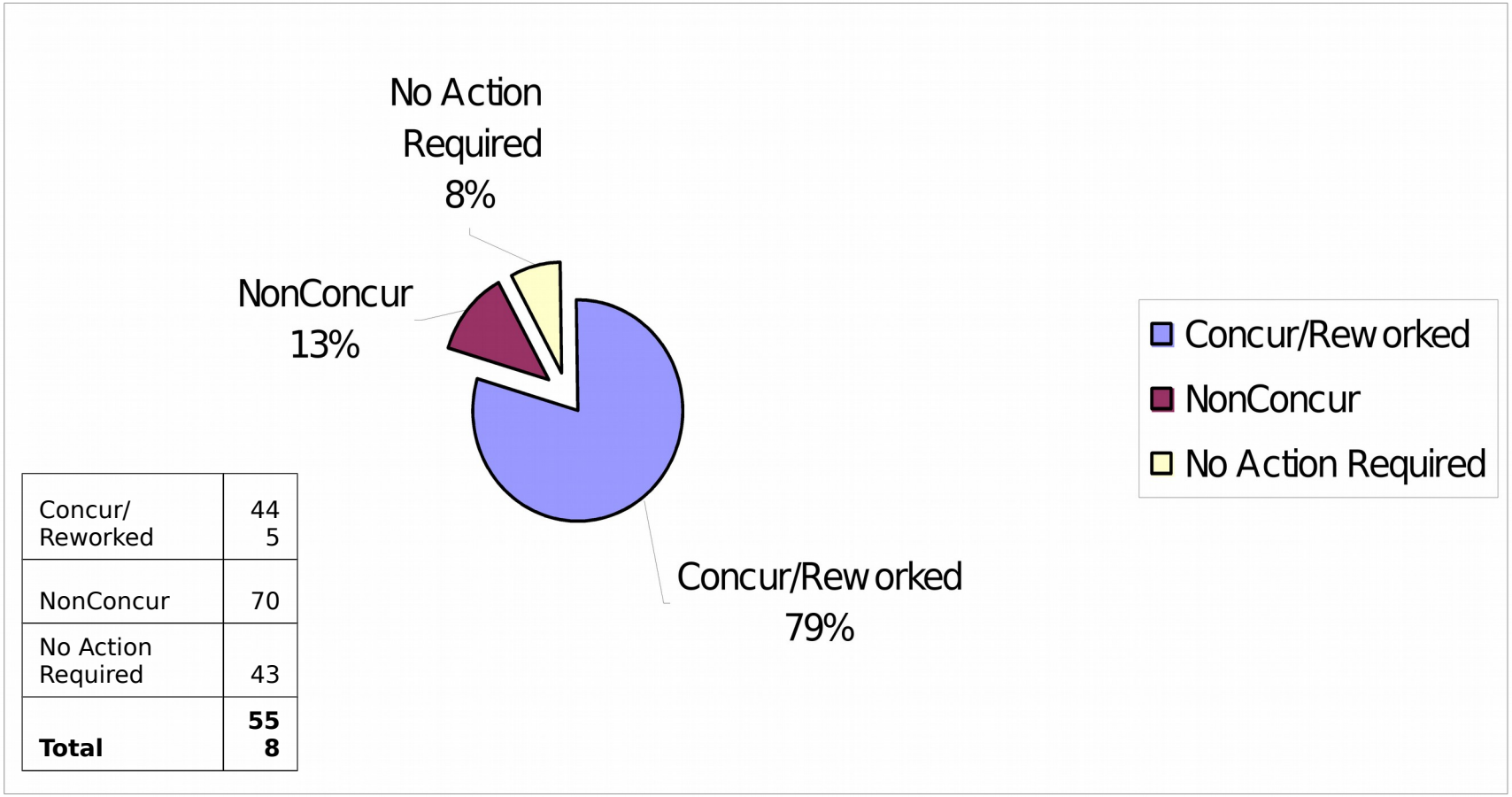
DoD Architecture Framework Update

Outline

- Comments and Disposition Summary
- Framework Volume I and II

- Deskbook
- Summary

Comments Summary - Disposition



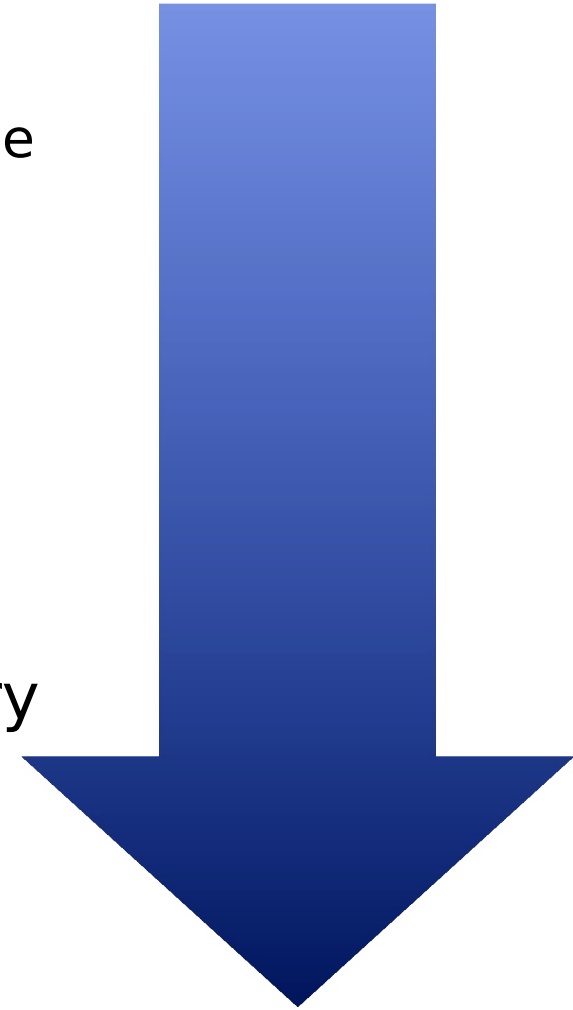
Concur/ Reworked	445
NonConcur	70
No Action Required	43
Total	**558**

Key Changes in Volume I

- Overview of DoD and Federal policies concerning architectures
- Information on the value of architectures, architecture measures, and use of architectures to support DoD processes
- Introduction to DoD Architecture Repository System (DARS)

Increased Emphasis on Meta-Data Standardization

- Each DODAF product description
  - Information Element Definition Table
  - CADM Support
- Core Architecture Data Model (CADM)
  - Build Architectures IAW CADM
- DoD Architecture Data Repository (DARS)
  - CADM compliant data repository
  - Hosts accredited DoD architecture information



Emphasis on Products to Support Use

RECOMMENDED USES OF ARCHITECTURE:	APPLICABLE ARCHITECTURE PRODUCTS																				
	All View		Operational View (OV)							Systems View (SV)										Tech Stds View	
	1	2	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	1	2
Planning, Programming, Budgeting Execution Process																						
Capability Based Analysis for IT Investment Decisions	●	●	●	●	●	●	●	●	▯	●	▯	●	●	●	●	●	●	●	●		●	▯
Modernization Planning and Technology Insertion/Evolution	●	●	▯	●	▯	▯	●	▯		●	▯	▯	▯	●	▯	●	●	●			●	●
Portfolio Management	●	●		●			●	▯		●			▯	●		▯	●				▯	
Joint Capabilities Integration and Development System																						
JCIDS Analysis (FAA, FNA, FSA)	●	●	●	●	▯	▯	●	●		●	▯		▯	●							▯	
ICD/CDD/CPD/CRD	●	●	●	●	●		●	●		●	▯	▯	●	●	●	▯	▯	▯	●		●	▯
Analysis of Alternatives (AoA)	●	●	●	●	▯		●	●		●	▯	▯	●	●	▯	▯	▯	▯			▯	▯
Acquisition Process																						
Acquisition Strategy	●	●	●	●	▯		●	▯		●	▯			●							●	
C4I Support Plan	●	●	●	●	●		●	●		●			▯		●	▯					●	▯
System Design and Development	●	●		●	●		●	●	▯	●	●	●	●	●	●	●	●	▯	▯	▯	●	▯
Interoperability and Supportability of NSS and IT Systems	●	●	●	●	●	▯	●	▯	▯	●	▯	●	●		●	●	▯	▯	▯	▯	●	▯
Integrated Test & Evaluation	●	●		●	●	▯	●	●	▯	●	●	●	●	●	●	●			●	▯	●	
Operations (Assessment, Planning, Execution, ...)																						
Operations Planning & Execution	●	●	●	●	●	●	●	●	▯	●	●	▯	▯	●	▯	▯					▯	
CONOPS & TTP	●	●	●	●	●	●	●	●		●	▯	▯	▯	▯							▯	
Communications Plans	●	●	●	●		▯	▯			●	●						▯	▯			●	▯
Exercise Planning & Execution	●	●	●	●	●	●	●	●		●	●	▯	▯	▯	▯						▯	
Organizational Design	●	●	●	●	●	●	●	▯		▯	▯			▯								
BPR/FPI	●	●	▯	●	●	●	●	●	▯													

● = Product is highly applicable

▯ = Product is often or partially applicable

= Product is specifically addressed in policy

= Product is required for an Integrated Architecture

blank = Product is usually not applicable

- **Increased emphasis on using architectures to support DoD decision making**
- **Matrix provides guidelines on which architecture products are applicable to various uses of architecture**
- ***Minimum set of products for "Integrated Architecture"*: AV-1, AV-2, OV-2,**

Key Changes in Volume II

- Data element definitions consistent across products
- Greater emphasis on architecture data
  - Data element tables and element attribute definitions
  - CADM section and corresponding entities
- Guidance on developing architecture products using UML
- Expanded OV-3 template to allow support of subscribe/post
- Section on product and data element interrelationships
- Technical View is re-titled the Technical Standards View. The acronym remains TV

Key Changes in Volume II

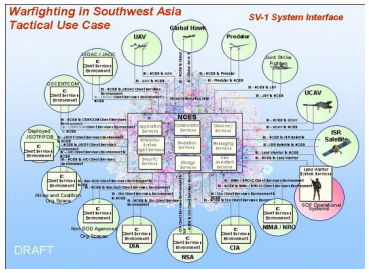
- New emphasis on capability-based analysis:
  - Operational Activity Model + DOTMLPF Attributes (Operational Activity Sequence and Timing Descriptions OV-6)
  - Expanded SV-5 Matrix relating Operational Activities to System Functions, Operational Activities (in an operational thread) to Capabilities, and Capabilities to Systems

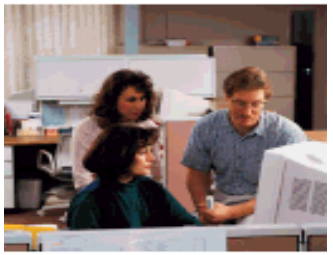
Key Changes in Volume II

- New SV-TV Bridge Matrix
  - Emphasis on Relating Technical Standards to Systems View elements
  - New TV-1 Matrix (Variant of TV-1):
    - SV-1 - Software and Hardware item standards
    - SV-2 - Information Transport and Information Assurance standards
    - SV-4 - Information Processing (GUI) and Human Computer Interface (HCI) Standards related to a specific function the system performs
    - SV-6 - Data Standards, particularly Message standards and Information Assurance standards
    - SV-7 - Data Standards for performance parameters of the “how, and when” of the architecture
    - SV-8 - Timeline of standards’ introduction to systems as they evolve
    - SV-9 - Relate future standards and technologies
    - TV-1 - Set of standards for above (SV-1 through SV-7)
    - TV-2 - A forecast for evolutionary changes in the standards, correlated against the time periods as indicated in the SV-8 and SV-9 products

Deskbook: Supplementary Material Areas Addressed

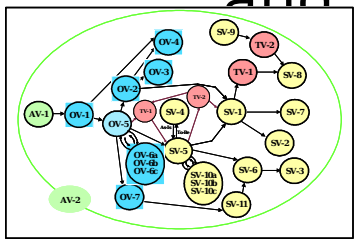
- Several techniques for developing architectures
  - Two architecture development processes
  - Notional examples of selected products portraying NCOW
  - Representing the role of humans in architectures
  - Description of a Capability Maturity Profile
  - Security/Information Assurance Architecture
  - Developing architecture descriptions at increasing levels of detail

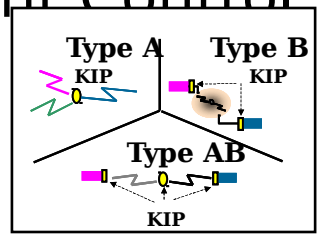


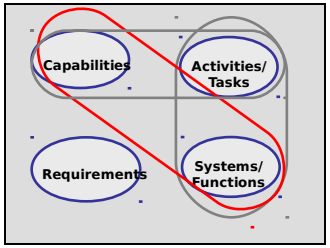


Deskbook: Supplementary Material Areas Addressed

- Analytical techniques for using architecture information to support DoD processes
  - Air Force's Task Force capability-based analysis
  - Navy's Mission Capability Package analysis approach
  - OASD(NII)/J6 Key Interface Process for addressing interoperability at interfaces
  - Architecture input to C4I Support Plans
  - The role of architectures in Capital Planning and Investment Control







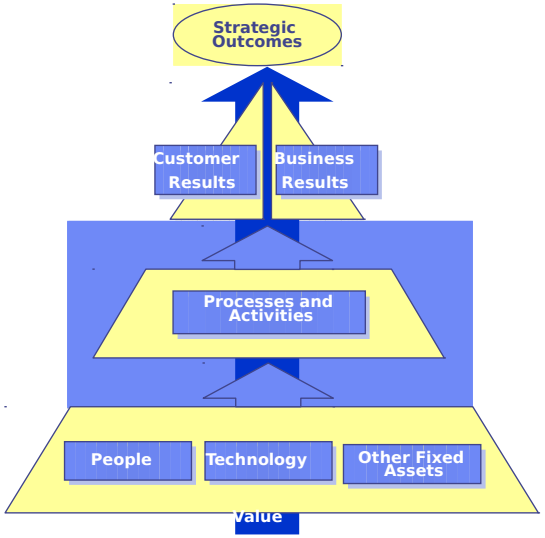
Summary

- DoD policy provide “teeth” for the architecture process
- DoD Architecture Framework
  - Emphasis on developing and using architectures to support Department’s major processes
    - Acquisition (5000),
    - Requirements (3170),
    - Capital Planning and Investment
    - Interoperability
  - Becomes more repository-based, vice product-centric focusing on CADM usage
  - Provides “how to” guidelines through the Deskbook

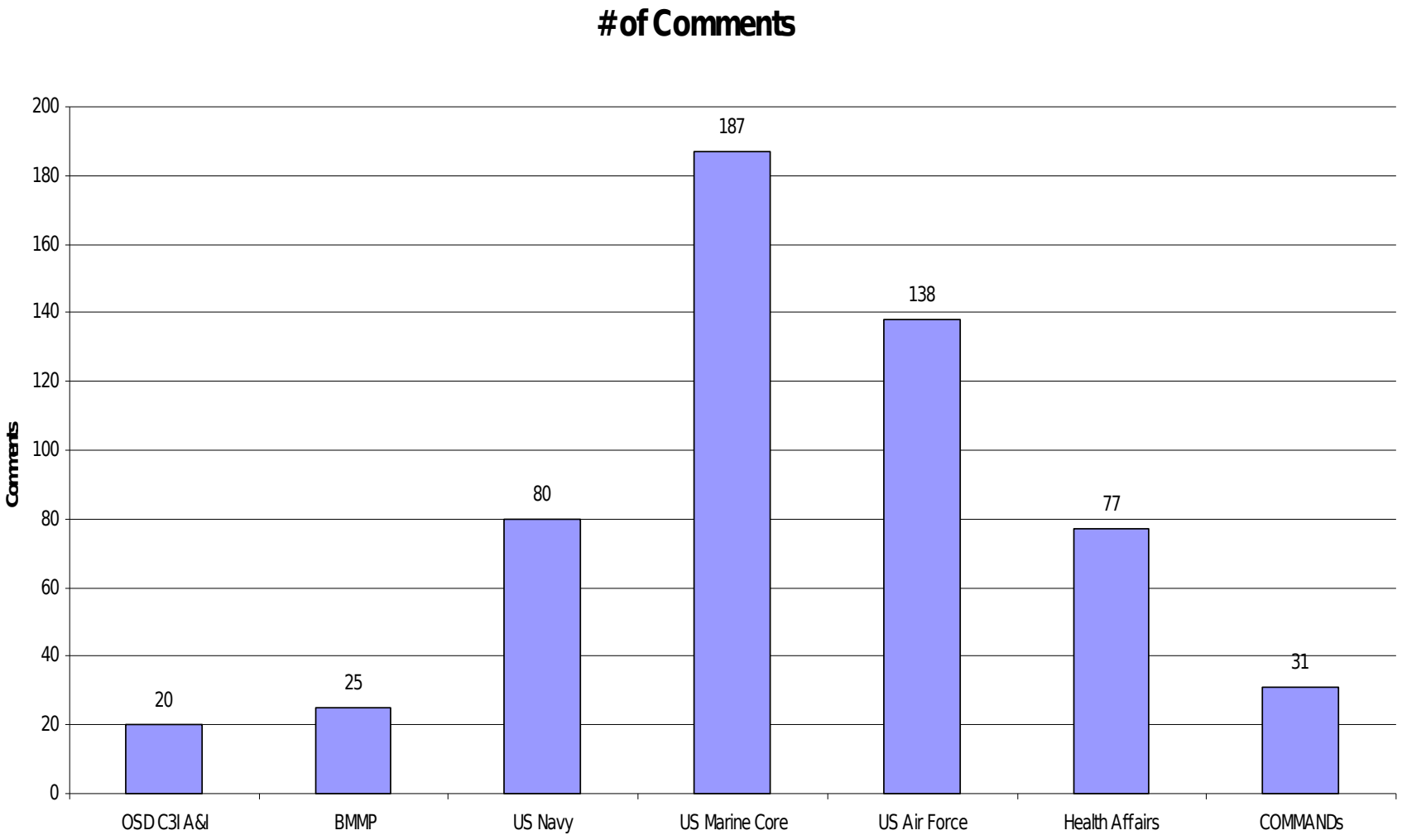
Backup Slides

Deskbook: Supplementary Material Areas Addressed

- Additional information
  - CADM support of architectural concepts
  - Criteria and approach for assessing architecture tools
  - Alignment with The Federal Enterprise Architecture (FEA) Reference Models
  - Updated Universal Reference Resources



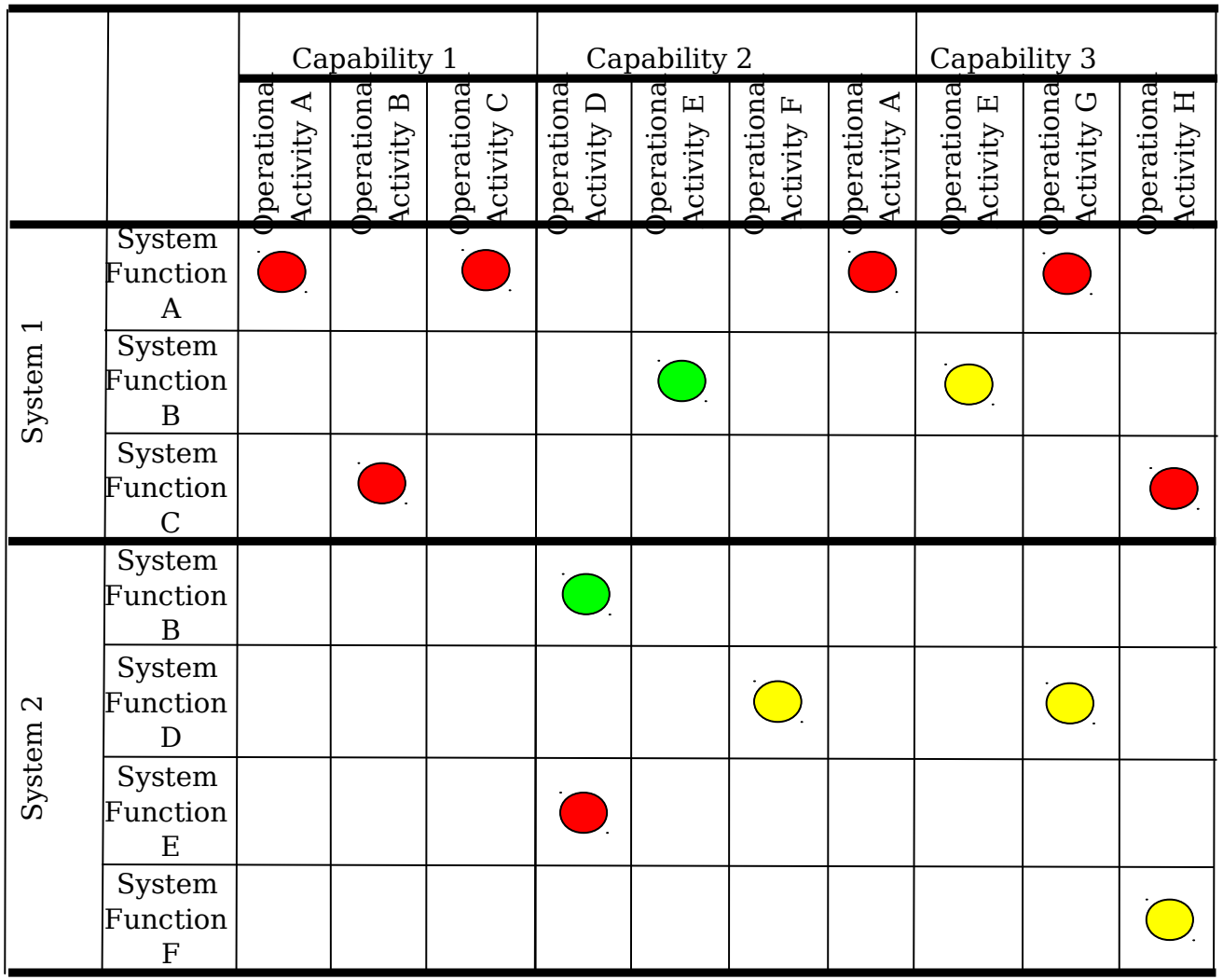
DODAF Comments by Organization



DODAF Working Group

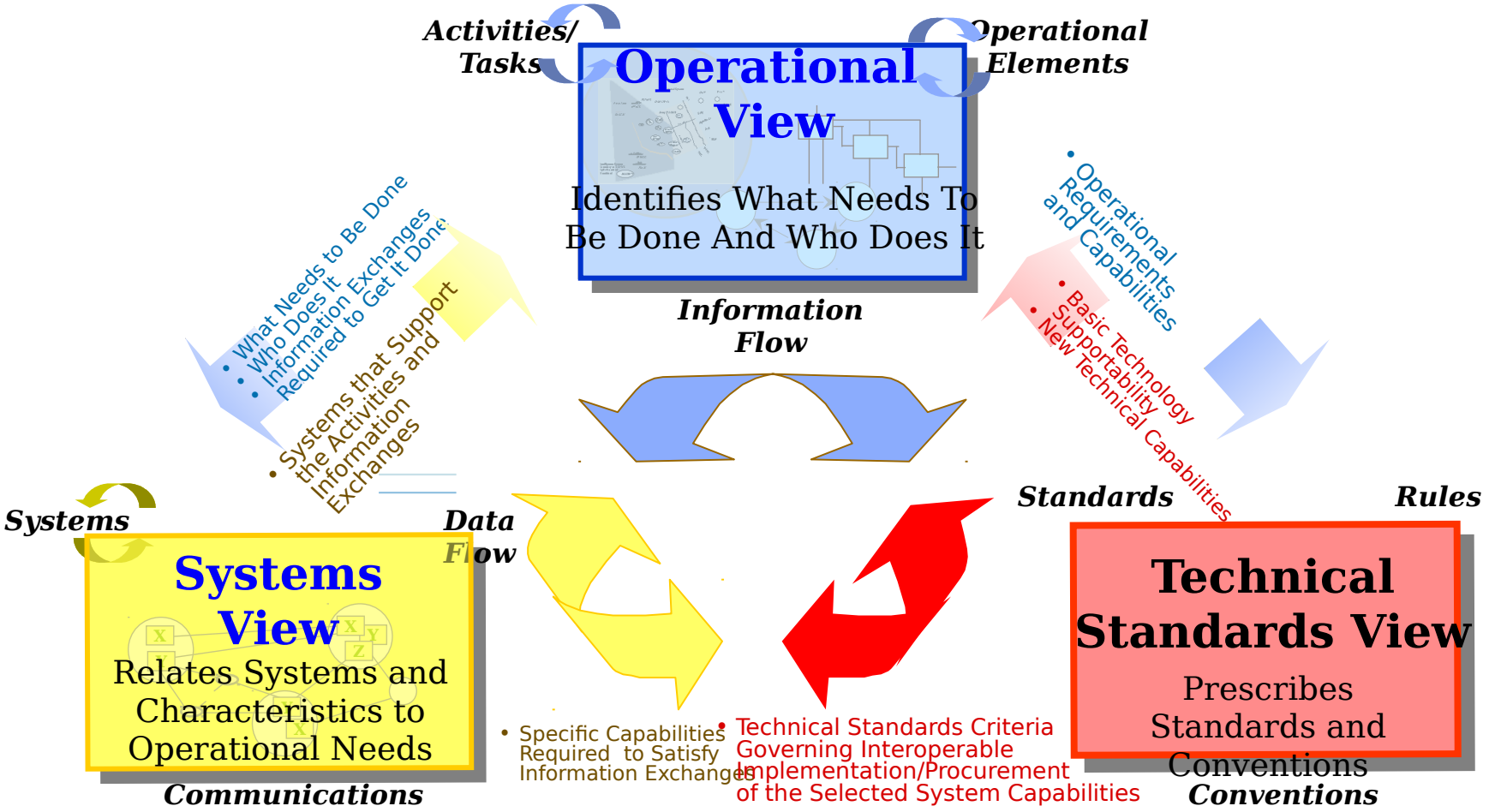
Last Name	First Name	Organization
Dahmann	Judith S.	AT&L
Gaetjen	James	Joint Staff: J6
Garnot	Ms. Michael	USMC MCCDC
Hettrick	Matthew	OSD AT&L
Johnson	Marco	Health Affairs
Keating	LtCol Peter J	USMC
Lindenbaum	CAPT Eric	Joint Staff: J8
McDaniel	Dave	DoN CIO
McDonald-Walker	Bob	IDA-CADM
McGrady	Patsy	Other Commands
Glista	Robert	IC CIO
Phelps	John (Chris)	OSD A&I
Polydys	Mary	NDU
Richards	Russ	DISA
Schmidt	Christopher W	USMC HQ
Shipp	John	Army G-6
Sirmons	Chandler	DFAS
Skertic	Robert	Defense Acquisition University
Thilenius	James E.	AF CIO
Ward	James	DFAS-BMMP
Wilczynski	Brian	Navy DON CIO
Wittenauer	Rob	USSTRATCOM/J612 - OASD (C3I) CISA Program

SV-5 Maps Capabilities to Systems



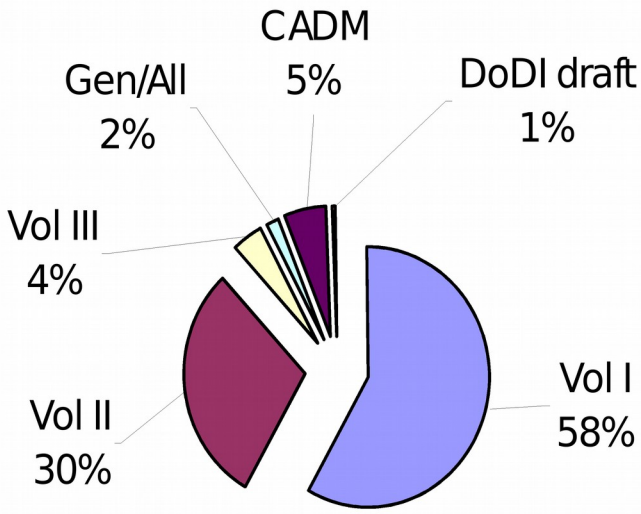
		Capability 1			Capability 2				Capability 3		
		Operational Activity A	Operational Activity B	Operational Activity C	Operational Activity D	Operational Activity E	Operational Activity F	Operational Activity A	Operational Activity E	Operational Activity G	Operational Activity H
System 1	System Function A	●		●				●		●	
	System Function B					●			●		
	System Function C		●								●
System 2	System Function B				●						
	System Function D						●			●	
	System Function E				●						
	System Function F										●

Basic Principles - An Integrated Architecture with Three Views

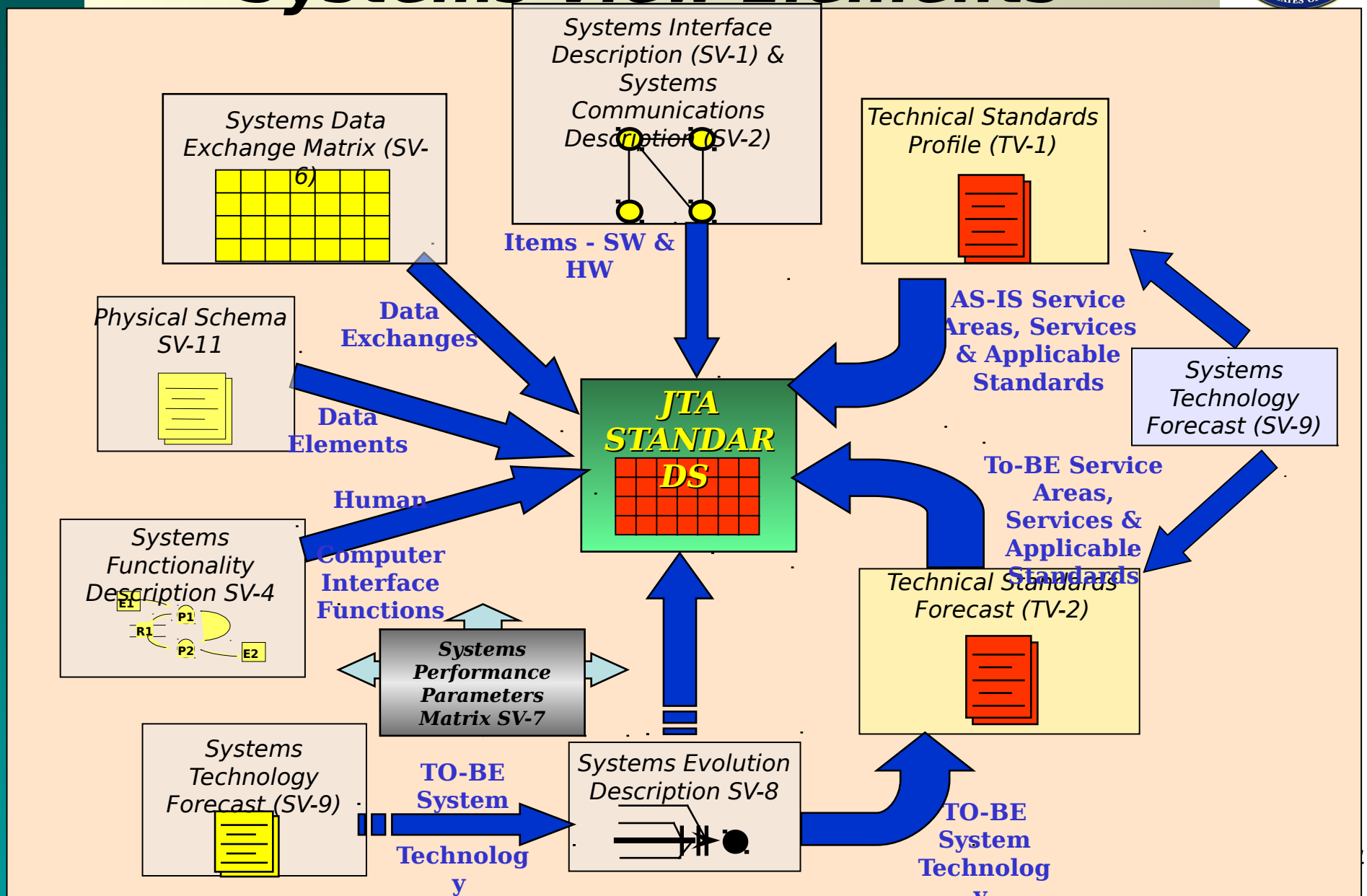

Activities/ Tasks
Operational Elements
Operational View
Identifies What Needs To Be Done And Who Does It
• What Needs to Be Done
• Who Does It
• Information Exchanges Required to Get It Done
• Operational Requirements and Capabilities
• Basic Technology Supportability
• New Technical Capabilities
Information Flow
• Systems that Support the Activities and Information Exchanges
Systems
Data Flow
Standards
Rules
Systems View
Relates Systems and Characteristics to Operational Needs
Technical Standards View
Prescribes Standards and Conventions
• Specific Capabilities Required to Satisfy Information Exchanges
• Technical Standards Criteria Governing Interoperable Implementation/Procurement of the Selected System Capabilities
Communications
Conventions

Comments Summary - Comments by Volume

	No. Cmts	% of Total
Vol I	324	58.06%
Vol II	168	30.11%
Vol III	22	3.94%
Gen/All	12	2.15%
CADM	29	5.20%
DoDI draft	3	0.54%
TOTAL	558	100



TV-1 Correlates Standards To Systems View Elements

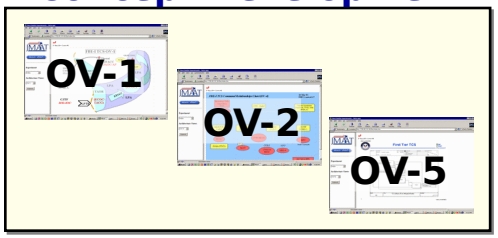


TV-1 Correlates Standards To Systems View Elements

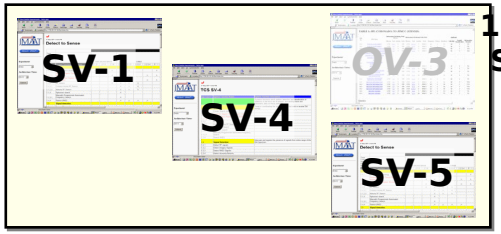
			SV-1 and SV-2 Systems (includes SOS, FOS, Subsystem, communications systems)	SV-1 and SV-2 Hardware or Software Item	SV-2 Communications (Physical) Link	SV-4 System Function	SV-6 System Data Element	OV-7, SV-11 Model Standard or Source
JTA Service Area	Service	JTA Standard	Applicable System ID or Name (with Time Period if applicable)	Hardware or Software ID or Name, Version (with Time Period if applicable)	System Data Link ID or Name (with Time Period if applicable)	System Function ID or Name	System Data Exchange ID or Name (with Time Period if applicable)	Model Standard or Source ID or Name (with Time Period if applicable)
Information-Technology Standards	Operating Environment							
Information-Processing Standards	Higher Order Languages							
Information-Transfer Standards	Data Flow Network							
	Narrow-Band Video Conferencing							
Information Modeling, Metadata, and Information Exchange Standards	Object-Oriented Modeling							
Human Computer Interface	Mandates							
Information								

Using Architectures in Systems Engineering & Acquisition

Concept Development

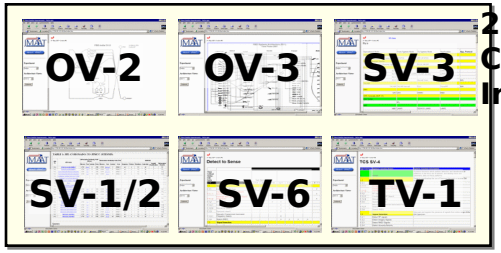


System Functional Mapping



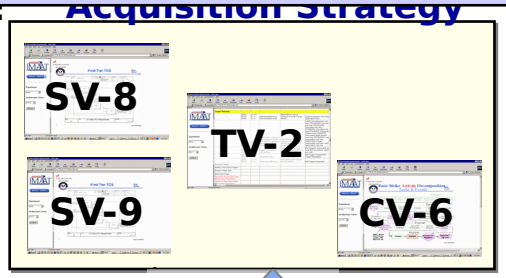
1st Order Analysis: System Functionality

System Interface Mapping and Assessment



2nd Order Analysis: Connectivity & Interoperability

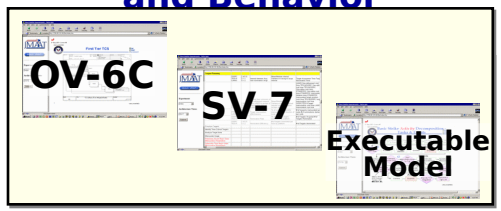
Acquisition Strategy



CV-6	Capabilities Evolution Description
OV-1	High-level Operational Concept Graphic
OV-2	Operational Node Connectivity Description
OV-3	Operational Information Exchange Matrix
OV-4	Organizational Relationships Chart
OV-5	Operational Activity Model
OV-6C	Operational Event-Trace Description
SV-1	Systems Interface Description
SV-2	Systems Communications Description
SV-3	Systems-Systems Matrix
SV-4	Systems Functionality Description
SV-5	Op Activity to Sys Function Traceability Matrix
SV-6	Systems Information Exchange Matrix
SV-7	Systems Performance Parameters Matrix
SV-8	Systems Evolution Description
SV-9	Systems Technology Forecast
TV-1	Technical Standards Profile
TV-2	Technical Standards Forecast

Note: There are dependencies between the Architecture products that are not shown in the System Engineering flow. Many of the products are developed concurrently.

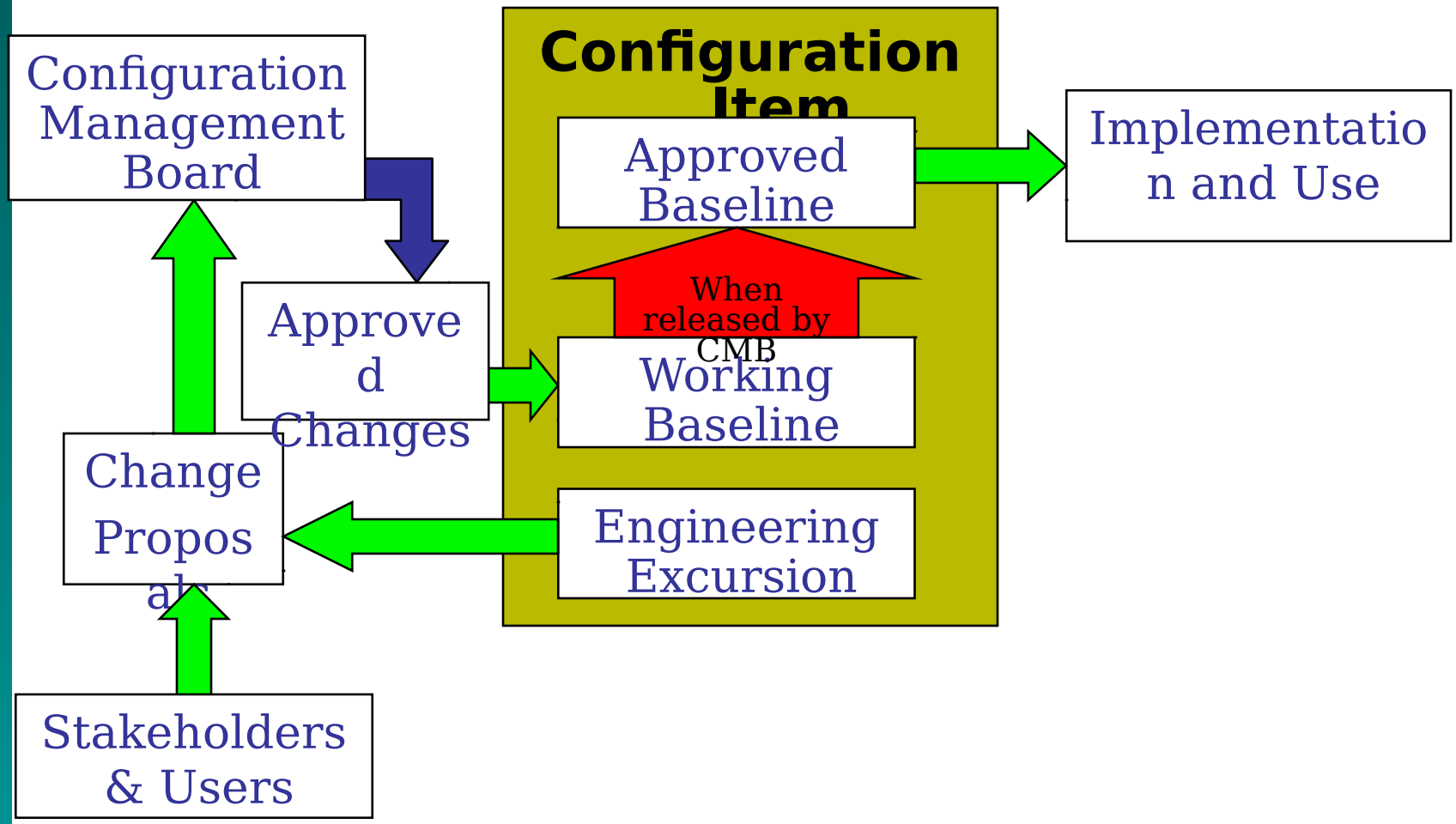
Architecture Performance and Behavior



3rd Order Analysis: Dynamic Interoperability

Architectures Provide the Framework for FoS/SoS Systems Engineering & Acquisition

The Configuration Management Process



Change Processing